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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/622,630	07/18/2003	Yanyun Chen	M61.12-0536	2658

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EXAMINER

PRENDERGAST, ROBERTA D

ART UNIT	PAPER NUMBER
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2671

DATE MAILED: 07/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/622,630

Applicant(s)

CHEN ET AL.

Examiner

Roberta Prendergast

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/18/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Reference number 360 for Fig. 6 disclosed on page 14 of the specification. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1-5, 10-12, 116

Claims ~~1-18~~ are rejected under 35 U.S.C. 102(e) as being anticipated by

Bruderlin et al. U.S. Patent Application No. 2003/0179203.

Referring to claim 1, Bruderlin et al. teaches, a computer implemented method for placing feathers on a surface comprising establishing a plurality of vertices on a surface (page 1, paragraph [0010]; page 4, paragraph [0054]; page 5, paragraph [0061]; page 7, paragraph [0083], [0086]-[0088]); establishing a growing direction for each of the plurality vertices on the surface (page 1, paragraph [0011]; page 6, paragraph [0073]; page 7, paragraph [0081], [0087], and [0092]); and placing feathers on the surface based on the plurality of vertices and the growing direction (Figs. 8(A-B), 12; page 1, paragraph [0010]).

Referring to claim 2, Bruderlin et al. teaches, the method of claim 1 wherein placing further comprises placing key feathers at selected vertices and interpolating to place other feathers on the surface between the selected vertices (page 1, paragraph [0010], lines 10-14; page 5, paragraph [0069]; page 6, paragraph [0075]; page 8, paragraph [0098]).

Referring to claim 3, Bruderlin et al. teaches, the method of claim 1 the method of claim 1 wherein placing further comprises recursively placing the feathers on the surface based on the growing direction (page 7, paragraph [0083]).

Referring to claim 4, Bruderlin et al. teaches, the method of claim 3 and further comprising: detecting collisions between adjacent feathers; and adjusting the growing direction such that the feathers do not collide (Figs. 2(element 258), 10; page 6, paragraph [0072]; page 12, paragraph [0137]).

Referring to claim 5, Bruderlin et al. teaches, the method of claim 1 wherein the plurality of vertices form similarly shaped polygons and wherein establishing includes

evenly distributing the plurality of vertices over the surface (page 4-5, paragraph [0060]-[0061]; page 5, paragraph [0070]).

Referring to claim 10, the rationale for claims 1, 3, and 4 are incorporated herein, claim 10 recites the elements in claims 1 (i.e. establishing a plurality vertices on a surface; establishing a growing direction for each of the plurality of vertices on the surface; and placing feathers on the surface based on the plurality of vertices and the growing direction), 3 (i.e. performing a recursive algorithm), and 4 (i.e. collision detection comprising adjusting the growing direction until there is no collision) and therefore the same rejections apply.

Referring to claim 11, the rationale for claim 10 is incorporated herein, Bruderlin et al. teaches the method of claim 10 further comprising receiving a shape of the feather (page 8, paragraph [0094] and [0099]).

Referring to claim 12, the rationale for claims 10 and 5 are incorporated herein, claim 12 recites the elements of claims 10 and 5 and therefore the same rejections apply.

Referring to claim 16, the rationale for claims 10 and 9 are incorporated herein, claim 16 recites the elements of claims 10 and 9 and therefore the same rejections apply.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims ⁶⁻⁹~~6-9~~ and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruderlin et al. U.S. Patent Application No. 2003/0179203 in view of Lapperrière U.S. Patent No. 5912675.

Referring to claim 6, Bruderlin et al. teaches, the method of claim 1 wherein a model of a bird may be made up of multiple triangulated surface skin patches (page 4, paragraph [0057]-[0059]) and further teaches wherein the patches are generated with different densities based on different regions of the model (pages 4-5, paragraph [0060]; page 8, paragraph [0097]; page 9, paragraph [0104]) but does not specifically teach wherein establishing includes establishing vertices over a body of a bird.

Lapperrière teaches wherein establishing includes establishing vertices over a body (column 2, lines 1-23; columns 4-5, lines 18-9; column 6, lines 8-48; columns 6-7, lines 65-21; column 12, lines 47-65, i.e. it is understood that an articulated skeleton of a bird is comprised of a head portion, a torso portion representing the body, two limb portions representing the wings, two limb portions representing the legs and a limb portion representing the tail).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method as recited in claim 1 to include wherein establishing includes establishing vertices over a body of a bird thereby allowing the movement of the body feathers to be bound to the movement of the body of a bird thereby generating a more realistic limb model while reducing the amount of effort

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required by the artist (column 2, lines 5-38; column 3, lines 25-38; columns 6-7, lines 65-21) and further providing a method of assigning the vertices of an envelope to a skeleton which is flexible, versatile and which can reduce the incorrect or undesired assignment of vertices to skeleton elements (column 3, lines 34-38).

Referring to claim 7, Bruderlin et al. teaches, the method of claim 1 wherein feathers are placed on the wing via region maps (page 9, paragraph [0104]; page 10, paragraph [0113]) but does not specifically teach wherein establishing includes establishing vertices over a wing skeleton.

Lapperrière teaches wherein establishing includes establishing vertices over a limb skeleton (column 2, lines 1-23; columns 4-5, lines 18-9; column 6, lines 8-48; columns 6-7, lines 65-21; column 12, lines 47-65).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method as recited in claim 1 to include wherein establishing includes establishing vertices over a wing skeleton thereby allowing the movement of the wing feathers to be bound to the movement of the skeleton of the bird thereby bird thereby generating a more realistic limb model while reducing the amount of effort required by the artist (column 2, lines 5-38; column 3, lines 25-38; columns 6-7, lines 65-21) and further providing a method of assigning the vertices of an envelope to a skeleton which is flexible, versatile and which can reduce the incorrect or undesired assignment of vertices to skeleton elements (column 3, lines 34-38).

Referring to claim 8, Bruderlin et al. teaches, the method of claim 1 but does not specifically teach wherein establishing includes establishing vertices over a tail skeleton.

Lapperrière teaches wherein establishing includes establishing vertices over a limb skeleton (column 2, lines 1-23; columns 4-5, lines 18-9; column 6, lines 8-48; columns 6-7, lines 48-21; column 12, lines 47-65).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method as recited in claim 1 to include wherein establishing includes establishing vertices over a tail skeleton thereby bird thereby generating a more realistic limb model while reducing the amount of effort required by the artist (column 2, lines 5-38; column 3, lines 25-38; columns 6-7, lines 65-21) and further providing a method of assigning the vertices of an envelope to a skeleton which is flexible, versatile and which can reduce the incorrect or undesired assignment of vertices to skeleton elements (column 3, lines 34-38).

Referring to claim 13, the rationale for claims 10 and 6 are incorporated herein, claim 13 recites the elements of claims 10 and 6 and therefore the same rejections apply.

Referring to claim 14, the rationale for claims 10 and 7 are incorporated herein, claim 14 recites the elements of claims 10 and 7 and therefore the same rejections apply.

Referring to claim 15, the rationale for claims 10 and 8 are incorporated herein, claim 15 recites the elements of claims 10 and 8 and therefore the same rejections apply.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bruderlin et al. U.S. Patent Application No. 2003/0179203 in view of Greg Turk, "Re-tiling polygonal surface", Computer Graphics (Proceedings of SIGGRAPH 92), 26(2) pages 55-64, July 1992.

Referring to claim 9, Bruderlin et al. teaches, the method of claim 1 but does not specifically teach re-tiling the surface so the vertices are evenly distributed.

Turk teaches re-tiling the surface so the vertices are evenly distributed (Sections 3.2 Positioning Vertices by Point Repulsion and 4 Re-Tiling by Mutual Tesselation, pages 57-58).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method as recited in claim 1 to include re-tiling the surface so the vertices are evenly distributed thereby faithfully representing the surface geometry, the location, and curvature of the re-tiled surface and for faithfully representing the surface's topology (Section 3.2 Positioning Vertices by Point Repulsion, 1st paragraph, page 57).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to modeling hair and/or feathers on surfaces.

Bruderlin U. S. Patent Application No. 20020057278

Usami et al. U. S. Patent No. 5404426

Rouet et al. U. S. Patent No. 5758046

Rouet et al. U. S. Patent No. 6097396

Kobayashi et al. U. S. Patent No. 6351266

Anderson et al. U. S. Patent No. 6559849

Alter U. S. Patent No. 6720962

The following patents are cited to further show the state of the art with respect to establishing vertices over a body/skeleton.

Sasaki U. S. Patent No. 20010019333

Lake et al. U. S. Patent Application No. 20020196258

Takeuchi et al. U. S. Patent No. 5267154

Ishikawa et al. U. S. Patent No. 6317130

Lapperrière U. S. Patent No. 6400368

Mochizuki et al. U. S. Patent No. 6414684

Lake et al. U. S. Patent No. 6798415

The following Non-Patent Literature is cited to further show the state of the art with respect to modeling hair and/or feathers on surfaces.

J. T. Kajiya , T. L. Kay, "Rendering fur with three dimensional textures", Proceedings of the 16th annual conference on Computer graphics and interactive techniques, p.27 1-280, July 1989

Y. Chen, Y. Xu, B. Guo, H.Y. Shum, "Modeling and Rendering of Realistic Feathers", Computer Graphics (ACM SIGGRAPH Proceedings), San Antonio, 2002, pp. 630-636

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roberta Prendergast whose telephone number is (571) 272-7647. The examiner can normally be reached on M-F 7:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on (571) 272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RP


ULKA J. CHAUHAN
PRIMARY EXAMINER